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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,365	04/23/2001	Chien-Li Kuo	REF/KUO/882CIP	2321

7590 12/11/2001

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EXAMINER

PEREZ RAMOS, VANESSA

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 12/11/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,365

Applicant(s)

KUO ET AL.

Examiner

Vanessa Perez-Ramos

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 7-8 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Donley (U.S. 4,299,863).

Donley discloses a method comprising: forming a plurality of semiconductor structures on a wafer (col. 2, lines 64-67); forming a "coating layer" over the surface of the wafer, wherein this "coating layer" "is not less than the heights of said semiconductor structures" (col. 3, lines 25-26, and Figure 3, wherein it is shown that "coating layer" 14 completely covers all of the structures on wafer 10); forming an "over coating layer" over said coating layer (col. 4, lines 41-44); and, forming a contact window in both "over coating" and "coating" layers (col. 4, lines 61-63 and col. 5, lines 64-67), wherein upper part of said contact window is "outwardly widened" (see Figure 13, which shows the contact window being wider in the top than in the bottom, which reads on Applicant's "outwardly widened" or "outwardly crooked"). Furthermore, Donley discloses that the "coating layer" can be made of a dielectric material (col. 3, line 25), and that the "over coating layer" can be made of a dielectric material too (col. 4, line 41).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, 6, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donley (U.S. 4,299,863), as applied to claims 1, 5 and 10-11 above.

In regard to claims 2-4 and 6, it is the Examiner's position that etching rates and angles are result effective variables, and its variation would have been obvious to one of ordinary skill in the art at the time of the invention, with the purpose of establishing the optimum process mode.

In regard to claim 9, all of the disclosed semiconductor structures are well known and obvious to one of ordinary skill in the art at the time of the invention.

In regard to claim 12, Donley discloses that the "over coating layer" can be deposited by "any convenient technique" (col. 4, lines 51-53). The disclosed techniques are all well known in the art, and its use would have been obvious to one of ordinary skill in the art at the time of the invention, in view of Donley's disclosure.

5. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donley (U.S. 4,299,862) as applied to claims 1-12 above, and further in view of Obeng (U.S. 5,836,805).

In regard to claims 13-17, these claims differ from claims 1-12 above by including a step of planarizing the dielectric by CMP.

Donley is silent about planarizing its silicon dioxide dielectric layer.

Obeng teaches a semiconductor manufacturing method, and discloses: "the unevenness of dielectrics makes the formation of additional levels of reliable conductors problematic. Consequently, it is desired to planarize or smooth dielectric layers....CMP has become a widely used technique for the planarization of ...dielectric..layers due to the high degree of global planarity that CMP provides" (col. 1, lines 11-31).

It is the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Donley by planarizing the dielectric layer by CMP, as per Obeng, since Obeng himself provides the motivation to do so: increased reliability of devices, which is highly desirable.

In regard to claims 18 and 20, it is the Examiner's position that etching rates and viscosity are result effective variables, and its variation would have been obvious to one of ordinary skill in the art at the time of the invention, with the purpose of establishing the optimum process mode.

In regard to claim 19, the methods disclosed are well known and obvious to one of ordinary skill in the art at the time of the invention.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is 703-306-5510. The examiner can normally be reached on Mon-Thurs 7:00am-5:30pm.

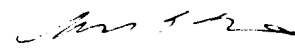
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

Vanessa Perez-Ramos
Examiner
Art Unit 1765

VPR
December 10, 2001


T: 703-308-3836